

IN THE CLAIMS

Please amend claims 18-20, 23, 25-37 and 40-50. Please cancel claims 21, 22, 38 and 39. Please add new claims 51 and 52. No new matter is added. A copy of all pending claims follows, with each claim including a status identifier pursuant to 37 CFR 1.121.

Claims 1-17 (Cancelled)

18. (Currently Amended) A method for generating at least one of process heat, ~~and~~ electrical energy, or any combination thereof, for a machine for at least one of production, ~~and~~ finishing, or any combination thereof, of a fibrous web, comprising:
- feeding waste products to a reformer,
- generating from the waste products resulting during the at least one of production, ~~and~~ finishing, or any combination thereof, of a fibrous web a hydrogen-rich gas having a ~~highest-possible~~ high proportion of hydrogen; ~~and~~
- utilizing the hydrogen-rich gas for generating the at least one of process heat, ~~and~~ electrical energy, or any combination thereof, ~~and~~
- transforming hydrocarbons of the waste products utilized into a hydrogen-rich and a carbon monoxide-rich gas by the reformer through at least one of, autothermic reforming, partial oxidation, vapor reforming, or any combination thereof.
19. (Currently Amended) The method according to claim 18, wherein at least one of bark, fibers, ~~and~~ edge cuttings, or any combination thereof, are utilized as waste products.
20. (Currently Amended) The method according to claim 18, further comprising utilizing at least one of:
- i) the waste products which are first transformed into methanol; ~~and~~
 - ii) a DMFC (Direct Methanol Fuel Cell); or
 - iii) any combination thereof.

21. (Cancelled)

22. (Cancelled)

23. (Currently Amended) The method according to claim [[21]] 18, wherein the reformer is followed by a shift stage for transforming carbon monoxide into another hydrogen-rich gas.

24. (Previously presented) The method according to claim 23, wherein one of the reformer or the shift stage is followed by at least one more process stage for further reduction of carbon monoxide.

25. (Currently Amended) The method according to claim 24, wherein the reformer is followed by the shift stage, and the shift stage is followed by a Pressure Swing Adsorption (PSA) stage ~~a shift stage for pressure swing adsorption as a further process stage.~~

26. (Currently Amended) The method according to claim 24, wherein the reformer is followed by the shift stage, and the shift stage is followed by a Selective Oxidation (SelOx) stage ~~a shift stage for selective oxidation as a further process stage.~~

27. (Currently Amended) The method according to claim 18, further comprising feeding to a reformer at least one of additional ~~hydrogen-carbons~~ hydrocarbons, ~~and~~ additional H₂, or any combination thereof, when the waste products resulting during at least one of production, ~~and~~ finishing, or any combination thereof, of the fibrous web are insufficient to meet an energy requirement.

28. (Currently Amended) The method according to claim 27, further comprising supplying the additional ~~hydrogen-carbons~~ hydrocarbons to the reformer in the form of at least one of natural gas, biomass, ~~and~~ wood chips, or any combination thereof.
29. (Currently Amended) The method according to claim 18, further comprising generating the at least one of process heat, ~~and~~ electrical energy, or any combination thereof, at a point of the machine at which the at least one of the process heat, ~~and~~ electrical energy, or any combination thereof, is required.
30. (Currently Amended) The method according to claim 29, further comprising generating the at least one of process heat, ~~and~~ electrical energy, or any combination thereof, at least one of on, in or near a particular unit of the machine which is to be one of heated, ~~and~~ or supplied with electrical energy.
31. (Currently Amended) The method according to claim 18, further comprising generating the at least one of process heat, ~~and~~ electrical energy, or any combination thereof, by at least one fuel cell from at least one of an acquired hydrogen-rich gas, ~~and~~ additional hydrogen, or any combination thereof, taken from at least one of a grid, ~~or a~~ a tank, or any combination thereof.
32. (Currently Amended) The method according to claim 18, further comprising generating the process heat by combusting at least one of an acquired hydrogen, methanol, ~~and~~ additional hydrogen, or any combination thereof, taken from at least one of a grid, ~~and a~~ a tank, or any combination thereof.
33. (Currently Amended) The method of claim 18, wherein the fibrous web is one of paper web ~~and~~ or paperboard web.

34. (Currently Amended) An apparatus for generating at least one of process heat, ~~and~~ electrical energy, or any combination thereof, for a machine for at least one of production, ~~and~~ finishing, or any combination thereof, of a fibrous web, wherein the apparatus comprises a reformer configured to be fed with waste product, the apparatus is configured to provide a hydrogen-rich gas having a highest possible high proportion of hydrogen generated from waste products resulting during the at least one of the production, and finishing, or any combination thereof, of the fibrous web, and the apparatus is configured to utilize the hydrogen-rich gas for generating the at least one of the process heat, and electrical energy, or any combination thereof, and the apparatus is configured to transform hydrocarbons of the waste products utilized into a hydrogen-rich and a carbon monoxide-rich gas by a reformer through at least one of, autothermic reforming, partial oxidation, vapor reforming, or any combination thereof.
35. (Currently Amended) The apparatus of claim 34, wherein the fibrous web is one of paper web ~~and or~~ paperboard web and the machine is configured for the at least one of the production, and finishing, or any combination thereof, of the one of paper web ~~and or~~ paperboard web.
36. (Currently Amended) The apparatus of claim 34, wherein at least one of bark, fibers, ~~and~~ edge cuttings, or any combination thereof are utilized as waste products, and the apparatus is configured to provide the hydrogen-rich gas generated from at least one of the bark, fibers, ~~and~~ edge cuttings, or any combination thereof.
37. (Currently Amended) The apparatus of claim 34, wherein at least one of:
- i) the waste products utilized are first transformed into methanol, ~~and~~
 - ii) a DMFC (Direct Methanol Fuel Cell) is utilized, ~~and or~~
 - iii) any combination thereof, and
- the apparatus is configured to utilize at least one of the methanol and DMFC.

38. (Cancelled)

39. (Cancelled)

40. (Currently Amended) The apparatus of claim [[38]] 34, wherein the apparatus comprises a shift stage for transforming carbon monoxide into another hydrogen-rich gas, and the shift stage is followed by the reformer.

41. (Currently Amended) The apparatus of claim [[38]] 34, wherein the apparatus comprises at least one more process stage for further reduction of carbon monoxide, and the at least one more process stage follows one of the reformer or a shift stage.

42. (Currently Amended) The apparatus of claim 41, wherein the reformer is followed by the shift stage for one of, (a) pressure swing adsorption ~~and~~ or (b) selective oxidation, as a further process stage.

43. (Currently Amended) The apparatus of claim 34, wherein the apparatus is configured to feed at least one of additional ~~hydrogen-carbons~~ hydrocarbons, and additional H₂, or any combination thereof, to a reformer when the waste products resulting during the at least one of ~~the~~ production, ~~and~~ finishing, or any combination thereof, of the fibrous web are insufficient to meet an energy requirement.

44. (Currently Amended) The apparatus of claim 43, wherein the reformer is configured to be supplied with additional ~~hydrogen-carbons~~ hydrocarbons in the form of at least one of natural gas, biomass, ~~and~~ wood chips, or any combination thereof.

45. (Currently Amended) The apparatus of claim 34, wherein the apparatus is configured to generate the at least one of process heat, ~~and~~ electrical energy, or any combination

thereof, at a point of the machine at which the at least one of ~~the~~ process heat, ~~and~~ electrical energy, or any combination thereof, is required.

46. (Currently Amended) The apparatus of claim 45, wherein the apparatus is configured to generate the at least one of process heat, ~~and~~ electrical energy, or any combination thereof, at least one of on, in or near a particular unit of the machine that is to be at least one of heated, ~~or~~ supplied with electrical energy, or any combination thereof.
47. (Currently Amended) The apparatus of claim 34, wherein the apparatus comprises at least one fuel cell and is configured to generate the at least one of process heat, ~~and~~ electrical energy, or any combination thereof, by at least one fuel cell from at least one of an acquired hydrogen-rich gas, ~~and~~ additional hydrogen, or any combination thereof, taken from at least one of a grid, ~~or~~ tank, or any combination thereof.
48. (Currently Amended) The apparatus of claim 34, wherein the apparatus is configured to generate the process heat by combusting at least one of an acquired hydrogen, methanol, ~~and~~ additional hydrogen, or any combination thereof, taken from at least one of a grid, ~~and~~ a tank, or any combination thereof.
49. (Currently Amended) A method for generating at least one of process heat, ~~and~~ electrical energy, or any combination thereof, for a machine for at least one of production, ~~and~~ finishing, or any combination thereof, of a fibrous web, comprising: generating a hydrogen-rich gas having a ~~highest possible~~ high proportion of hydrogen from waste products resulting during the at least one of production, ~~and~~ finishing, or any combination thereof, of a fibrous web, the hydrogen-rich gas being utilized for generating at least one of a necessary process heat, ~~and~~ a necessary electrical energy, or any combination thereof, and ~~hydrogen-carbons~~ hydrocarbons of the waste products utilized being transformed into a hydrogen-rich and a carbon

monoxide-rich gas by a reformer through at least one of autothermic reforming, partial oxidation, ~~and~~ vapor reforming, or any combination thereof.

50. (Currently Amended) An apparatus for generating at least one of process heat, ~~and~~ electrical energy, or any combination thereof, for a machine for at least one of production, ~~and~~ finishing, or any combination thereof, of a fibrous web, wherein the apparatus is configured to provide a hydrogen-rich gas having a ~~highest possible~~ high proportion of hydrogen generated from waste products resulting during the at least one of production, ~~and~~ finishing, or any combination thereof, of a fibrous web,

the apparatus is configured to utilize the hydrogen-rich gas for generating at least one of a necessary process heat, ~~and~~ a necessary electrical energy, or any combination thereof,

the apparatus comprises a reformer and the reformer is configured to be first fed with the waste products, and

the reformer is configured to transform ~~hydrogen-carbons~~ hydrocarbons of the waste products into a hydrogen-rich and a carbon monoxide-rich gas through at least one of autothermic reforming, partial oxidation, ~~and~~ vapor reforming, or any combination thereof.

51. (New) A method for generating at least one of process heat, electrical energy, or any combination thereof, for a machine for at least one of production, finishing, or any combination thereof, of a fibrous web, comprising:

feeding waste products to a reformer,

generating from waste products resulting during the at least one of production, finishing, or any combination thereof, of a fibrous web a hydrogen-rich gas having a high proportion of hydrogen;

utilizing the hydrogen-rich gas for generating the at least one of process heat, electrical energy, or any combination thereof,

transforming hydrocarbons of the waste products utilized into a hydrogen-rich and a carbon monoxide-rich gas by the reformer through at least one of, autothermic reforming, partial oxidation, vapor reforming, or any combination thereof,

feeding to the reformer at least one of additional hydrocarbons, additional H₂, or any combination thereof, when the waste products resulting during at least one of production, finishing, or any combination thereof, of the fibrous web are insufficient to meet an energy requirement, and

supplying the additional hydrocarbons to the reformer in the form of at least one of natural gas, biomass, wood chips, or any combination thereof.

52. (New) An apparatus comprising:

a reformer, wherein the reformer is configured to receive hydrocarbons and air, and is configured to generate a hydrogen rich and carbon monoxide rich gas;

a shift stage, wherein the shift stage is configured to receive the hydrogen rich and carbon monoxide rich gas from the reformer, and is configured to generate a very hydrogen rich gas;

a Pressure Swing Adsorption (PSA) stage, wherein the Pressure Swing Adsorption stage is configured to receive the very hydrogen rich gas, and is configured to generate a pure or nearly pure hydrogen gas; and

a Selective Oxidizer (SelOx), wherein the Selective Oxidizer is configured to receive the very hydrogen rich gas and air, is configured to oxidize most of the carbon monoxide in the very hydrogen rich gas and air, and is configured to generate a gas with very low carbon monoxide.